



CARIBBEAN CURRENTS

Volume 4, Number 3

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Welcome..

...to **CARIBBEAN CURRENTS**, Volume Four, Number Three. This newsletter is edited by INFOTERRA/USA in its capacity as the Regional Service Centre (RSC) for INFOTERRA National Focal Points (NFPs) in the English and French-speaking Caribbean. Although the *CURRENTS* is assembled at INFOTERRA/USA, the content belongs to you, the readers. You are encouraged to send in any questions, comments, problems, or interesting issues relevant to the Region for inclusion in the *CURRENTS*. Please see the Guidelines for Contributions on page 4 for more information.

Each issue will feature a Directory of NFPs in the Region so that anyone with international environmental questions can contact their nearest resource. Please feel free to contact one another as well as your RSC for assistance or materials.

Publication of this issue has been delayed due to circumstances beyond the control of INFOTERRA/USA. As well, budget constraints prevent us from distributing as many copies as usual. Please feel free to share *CARIBBEAN CURRENTS* with your friends and colleagues, and to make as many copies as needed. The Currents should serve as an informational forum for anyone who lives, works, or is involved in environmental issues in the English and French-speaking Caribbean Region.

MANAGING NATURAL DISASTERS

Last issue, **CARIBBEAN CURRENTS** featured publications focusing on women and the environment. Our next issue will look at disaster planning. The disasters, caused by natural hazards such as floods, hurricanes, landslides, desertification and geologic hazards such as earthquakes, generate a demand for enormous amounts of capital to restore what is destroyed and damaged. The development community should address this issue because it affords, among environmental issues, the most manageable of situations: the risks are readily identified, mitigation measures are available, and the benefits that are obtained from vulnerability-reduction actions are high in relation to costs.

If you have any comments on this topic, or would like to contribute a short article or have a resources guide to share, please submit your contribution following the guidelines on page 4. Any information you can provide is useful. Please feel free to fax, write to, or call the RSC with any questions or comments you may have. Share any information you have and we will include it in the next or a future issue of the *CURRENTS*. Thank you for your assistance.

MANGROVES

Mangroves are found on almost every coastline of the wider Caribbean. They serve as wildlife habitat and breeding ground for many kinds of fish and shellfish. Mangroves stabilize and protect the shoreline, and maintain water quality.

Mangrove is a generic term referring to salt-tolerant and salt-excreting trees and shrubs that inhabit tropical coasts and shorelines. The four most common mangrove species found in the wider Caribbean are: red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), white mangrove (*Laguncularia racemosa*), and buttonwood (*Conocarpus erecta*).

With their pencil-like root structure, these trees colonize muddy, anaerobic shores and flats, forming areas of open water such as lagoons and small cays. These open water areas function as an interface between aquatic and terrestrial ecosystems. Mangrove prop-roots provide protection for juvenile shrimp and fish. Lagoons and estuaries give refuge to endangered species such as manatees, crocodiles, and turtles.

Mariculture and tourism boost Caribbean economies, and mangroves play a role. Mariculture of marine organisms like shrimp exploits the natural mangrove environment. In Belize, approximately 775 metric tons of fishery products valued at BZ \$18 million were exported (1990). Tourism brought 14 thousand visitors to Bay Islands, who spent approximately \$9 million (1990). Mangrove management remains an important issue, as the mariculture and tourism industries are developed in the Caribbean.

Water is trapped and filtered through the mangroves by periodic flooding, tidal fluctuations and rainwater runoff. This water movement and filtration has a positive effect on water quality. Water quality within the mangroves can be affected negatively as well, by direct and distant actions.

Uncontrolled, unplanned development, together with poor waste disposal practices, are a major threat to mangroves. Many mangroves are abused as dump and disposal sites. Mangroves are affected when coastal cities of Latin America and the Caribbean do not treat their wastewater, industrial effluent, or municipal solid waste. The ability to initiate mangrove protection and sustainable use can be hampered by poor governance and a lack of infrastructure for coastal zone management.

New and innovative management practices are being undertaken to foster the protection of the Caribbean's coastal resources. The U.S. Agency for International Development (USAID) is one of the agencies funding projects to avoid mangrove destruction, and to conserve coral reef and terrestrial areas. Recent projects have included: (1) Lighthawk, a project that involves aerial photography, coastal mapping and a census of manatees off the Miskito Coast, (2) Wildlife Conservation and Management project, in the Tortugero region of Costa Rica's Caribbean coast, to protect green sea turtle nursery grounds, (3) Local Site management, in St. Lucia, to organize local communities in planning, monitoring, and implementing bio-diversity conservation plans, (4) the Nature Conservancy's Parks in Peril program to protect coastal zone parks, in Mexico's Yucatan peninsula.

Recently-funded research is underway to study the effects of oil dispersant on coral reefs and mangroves in the Caribbean. For FY95, approximately \$3 to \$4 million were allocated for the Environmental Initiative of the Americas (EIA). According to Karen Menczer, of the USAID staff, "This mission-driven program will focus on watershed management, pollution control, and pollution prevention, in contrast to previous Washington-based programs which focused on conservation alone. Current funding is going to go to strengthen existing agencies and to institutional environmental assessment in governments."

Other AID funded programs that have a component to deal with mangroves are: Proyecto Ambiental Regional Para Centro America (PROARCA), Environmental and Coastal Resources (OECS/ENCORE), and the PROMESA project in El Salvador. For further information on efforts to protect mangroves contact:

Karen Menczer at USAID: 202-647-8048

Jeff Brokaw at USAID: 202-647-8070

Eric Fajer at USAID: 202-647-5677

Sources

Bossi, Richard and Gilberto Centron, *Manglares Del Gran Caribe, Hacia un Manejo Sostenible*. Nairobi, Kenya: Programa de las Naciones Unidas para el Medio Ambiente (PNUMA), 1990. Publicado conjunta por PNUMA (Nairobi), la Asociacion ara la Conservacion del Caribe (Barbados) y el Instituto Panos (Washington).

Blohm, Cecil and Federica Pania, *Manglares. Fundacion para la Defensa de la Naturaleza*. Caracas, Venezuela: Fundacion para la Defensa de la Naturaleza (FUNDENA), 1989.

Foer, Gordon and Stephen Olson, *Central America's Coasts*. USAID Office of Research and Development, Development Document, and University of Rhode Island, 1992.

Green Guidance for Latin America and the Caribbean. USAID and World Resources Institute, 1993.

Dricher, John C. *A Neo-Tropical Companion*. Princeton: University of Princeton Press, 1989.

This article was contributed by Josh Lazarus, who lived and worked in Belize.

Additional Sources of Information on Mangroves:

R.J. Hochberg, W.B. Weisberg and J.B. Frithsen, *Design of a Basinwide Monitoring Program for the Tampa Bay Estuary*, NTIS, 1992, PB93-194694.

Wetlands, A Threatened Landscape, Oxford, U.K.: Blackwell, 1991 (chapter on rice paddies and mangroves in Southeast Asia)

Geoffrey Lean, *Atlas of the Environment*, New York: Prentice Hall Press, 1990. (chapter on mangroves, coral reefs and seagrasses)

Samuel C. Snedaker, and Melvin S. Brown, *Water Quality and Mangrove Ecosystem Dynamics*, NTIS, 1981. PB81-204109

Howard J. Teas, *Herbicide Toxicity in Mangroves*, NTIS, 1976. PB-251-785

Mangrove Dynamics/Management

A Mangrove Dynamics and Management (MADAM), project is being established between Brazil and Germany, reports *Tiempo, a Bulletin of Global Warming in the Third World* (issue 17, September 1995). The aim of the project is to investigate issues concerning the ecology of mangrove ecosystems and to provide solutions involving sustainable utilization and environmental protection. Whereas earlier studies had focused on "natural and pristine systems," this work will involve considerations of the "ecological, economic and socio-cultural functions of the system." The project will be coordinated by professors at the Center for Tropical Marine Ecology (Germany) and Universidade Federal de Para in Belem (Brazil). For further information, write: Center for Tropical Marine Ecology, MADAM Project, Klagenfurter-Strasse/GEO, D-28359 Bremen, Germany. FAX: 49-421-2185170.

Bibliographies from the RSC

INFOTERRA/USA compiled a number of short bibliographies for the U.N. Intergovernmental Conference on Protection of the Marine Environment from Land-based Activities that was held in Washington D.C. in October 1995.

Water Quality of Oceans and Seas
Marine Sediments
Marine Debris
Marine Pollution and Biodiversity
Oils
Coral

Persistent Organic Pollutants
Sewage
Metals
Radioactivity
Physical Alteration
Nutrients and Eutrophication

If any of these topics are of interest to you, just let us know. The RSC is happy to provide copies of any or all of these bibliographies to you.

Many of the documents included on these lists are EPA publications. They are available for a charge from National Technical Information Center (NTIS); or RSC can provide microfiche copies of these documents to any NFP on request. This means that the bibliographies serve both as handy reference tools and as ordering lists for key publications. If something interests you, just ask. We're here to work with you.

Guidelines for Contributions to *CARIBBEAN CURRENTS*

Any organization or individual operating or involved in the English and French-speaking Caribbean Region is welcome to contribute to the content of the newsletter. Contributions should be addressed to:

Caribbean Currents Coordinator
INFOTERRA/USA
U.S. Environmental Protection Agency
Headquarters Library, 3404
401 M Street, S.W.
Washington, D.C. 20460
UNITED STATES
Telephone: (202) 260-5917
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Internet: library-infoterra@epamail.epa.gov

Please note that submissions should meet the following criteria:

- They should be relevant to environmental issues
- They must be of interest to or directly involve the Region
- They must not endorse or recommend any product or commercial service either explicitly or implicitly
- They must be brief--preferably under 250 words; Bulletin Board requests should be kept under 100 words
- They must be received by the posted deadline (see below)

Please feel free to contact the *CARIBBEAN CURRENTS* coordinator if you are interested in submitting a longer article. You should contact the coordinator to discuss your topic and any size or content restrictions beforehand. Be aware that once your article is submitted, it is subject to editing as needed. Final decisions on editing and inclusion of any contributions are left to the INFOTERRA/USA Manager. Please contact INFOTERRA/USA using the address above to contribute any comments, questions, problems, or ideas.

DEADLINE FOR CONTRIBUTIONS TO Vol. 4, No. 4: April 12, 1996

Welcome to The *CARIBBEAN CURRENTS*

Bulletin Board

Each issue, we will publish questions or concerns of interest to CURRENTS readers. Anyone who has materials or information that they are seeking or that they feel will be helpful should feel free to contribute. We will post queries and offerings of general interest on the Bulletin Board. You may respond by contacting the reader who has placed the item, or the RSC.

Bulletin Board



DOCUMENTS AVAILABLE

INFOTERRA/USA has free copies of the following publications available.

If you would like copies of any of these documents, please let us know.

- Core List for An Environmental Reference Collection, 1993
- Summary, Environmental Plan for the Mexican-U.S. Border Area, First Stage, 1992-1994
- Environmental Crisis in the Gulf, the U.S. Response (U.S. Gulf Task Force)
- A Proposal for a National Library for the Environment (Committee for the National Institute for the Environment, reprinted from the NIE Proposal, Appendix C)
- The Use of Life Cycle Assessment in Environmental Labeling

To request copies of these documents, just write to INFOTERRA/USA using the contact information on page 6.



Information Needed on Pollution Prevention

INFOTERRA/USA receives many requests for information on pollution prevention. Although we have a number of publications on this topic in the United States, we are interested in collecting information on pollution prevention in your countries. Any regulatory, educational or industry guides you can provide would be greatly appreciated. We are interested in national or local regulations regarding pollution prevention as well.

Please contact INFOTERRA/USA using the information on page 6 if you can provide any assistance. Thank you for your support!

Send your Bulletins to the RSC for publication in the next issue. See the Guidelines on page 4 for information on submitting items.

About the NFP Directory

This directory reflects changes and additions to the INFOTERRA Directory of National Focal Points distributed by INFOTERRA/PAC, dated July 1995. Please check this information to verify that it is correct and up-to-date. If you have any changes or corrections, please notify the RSC as soon as possible. We will be happy to relay the information to the PAC.

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